POPULAR MECHANICS MAGAZINE
RADIO and ELECTRONIC BLUEPRINTS

The radio and electronic plans listed include all of the favorite well-known Popular Mechanics Magazine laboratory-tested circuits that are available in Blueprint form. The following list includes detailed construction articles for the beginner as well as the advanced student and experimenter. When ordering simply quote the R- numbers of the blueprints desired and enclose the proper amount. All radio and electronic blueprints are 40¢ each, or 3 for $1.00. Address Popular Mechanics Magazine, Radio-TV and Electronics Department, 200 East Ontario Street, Chicago 11, Illinois. Back copies of the magazine can be obtained from our Subscription Department at the usual price if they are in stock. Back issues are not required for construction as all blueprints are complete in every detail. NOTE--original material lists for these practical simplified construction articles are always available to students and experimenters from our Radio-TV and Electronics Department, upon application without charge; they also are included with each blueprint. The student builder should always have the original detailed list of parts specified for each construction article to avoid impractical substitutions and insure maximum results. These units can be assembled from standard parts listed in any of the radio parts house catalogues. Their addresses are available upon request.

If there are any points in these blueprints or material lists not clear to the builder, or if the sources of the parts and material specified are desired, he may write to the Radio-TV and Electronics Editor, Popular Mechanics Magazine, 200 East Ontario Street, Chicago 11, Illinois, for further information. There is no charge for this service.

R-428 Two Inexpensive High-Fidelity Multiple-Speaker Enclosures. One is an infinite baffle type with four 4-in. PM speakers; the other is a back-loaded type employing four 6-in. extended-range speakers: both designed on sound principles.....Oct. 1954..40¢

R-425 1954 "Little Giant" Low-Cost Multistation Intercom System. Simple and inexpensive to build; includes one master station, and from one to four substations. Each substation can originate a call to the master station. Tubes: 1- 12AU6, 1- 50C5, 1- 35W4. Mar. 1954..40¢

R-424 Super-Fidelity Home Phono has Back-Loaded Cabinet. A complete phono system using the super-fidelity principle employed in former Popular Mechanics Hi-Fi construction articles. Tubes: 1- 117Z6-GT, 1- 12AX7, 2- 50L6-GT, 1- 5879.....Feb. & Mar. 1954..40¢

R-423 One-Tube Loudspeaker Set for Junior Builders. A safe, simple and sensitive one-tube receiver for junior radio experimenters. Uses one type 3V4 miniature tube (battery operated).....Dec. 1953..40¢

R-422 New Seven-Seas Scout Uses Hand-Wound Coils. This popular set covers the broadcast band and all major short-wave bands with five hand-wound plug-in coils. Tunes in short-wave stations from all over the world. Tubes: 1- 12SL7-GT, 1- 50L6-GT, 1- 35Z5-GT..... .....Sept. 1953..40¢

R-421 Multi-Purpose Battery-Operated Audio Amplifier. A portable amplifier for a spring-wound record player for picnics, etc.; provision is also made for using a small crystal microphone for experimental public address; also includes a germanium diode detector and tuner that operates a PM speaker on strong locals. Tubes: 1- 3Q5-GT, 1- 1G6-GT.....July 1953..40¢

R-419 How to Build an Applause Meter. Impartial judgment registered by an electronic circuit removes all questions of fairness or favoritism in judging winners. Tubes: 1- 6SN7-GT, 1- 6SK7-GT, 1- 5Y3-GT.....May 1953..40¢

R-418 Six-In-One Radio Laboratory Project for Beginners. Beginners can get clear understanding of basic circuits and evaluate their merits by building six simple circuits on foundation unit. Tube: 1- 6SN7-GT.....April 1953..40¢

R-417 1953 "Little Giant" High-Fidelity AM Superheterodyne Tuner. Designed to help music lovers improve their home sound systems. Can be used with any good high-fidelity audio amplifier. Tubes: 1- 6SA7, 1- 6SK7, 1- 6SQ7, 1- 5Y3-GT.....Mar. 1953..40¢

R-416 Twenty-Watt Super-Fidelity Audio Amplifier. Without a doubt this audio amplifier, designed for the critical hi-fidelity music lover, has greater undistorted output than most triode circuits; it has twice the power of type 307 triode amplifiers. At 10 watts the intermodulation distortion (IMD) is below 1%. Tubes: 2- 6L6-G, 1- 5V4-G, 1- 6SN7-GT, 1- 6SJ7 (not G), 1- 6N7 (not G), 1- 6SC7 .....Feb. 1953..40¢

R-415 Children's Record Player has Automatic Start and Stop. One type 3V4 tube is used in the amplifier; volume is limited to a low level; pickup arm operates on-off switch.....Dec. 1952..40¢

R-412 Tiny Salesman's Pal A.C.-D.C. Super Uses "Printed Circuit" Audio Stage. Whether you are a salesman, or a vacation traveler, you will find this compact little set a good companion. Tubes: 1- 12BE6, 1- 12BD6, 1- 12AT6, 1- 50B5 and 1- 35W4 (miniature types) .....Aug. 1952..40¢

-OVER-

R-411 Versatile Preamplifier Modernizes Phono-Radio Combinations.This is a self-powered unit that can be used remotely or it may be built into a cabinet housing other units. It can be used to convert your phono amplifier into a public address unit, or to provide for variable-reluctance cartridges; includes volume and tone controls. Tubes: 1- 6SC7, 1- 6SN7-GT.....July 1952..40¢

R-408 1952 "Little Giant" Radio-Intercom System for Experimenters. This home and classroom project for 1952 combines an intercom system with a favorite a.c.-d.c. 5-tube superheterodyne receiver circuit. Designed for advancing students and experimenters. Tubes: 1- 12SA7, 1- 12SK7, 1- 12SF7, 1- 50L6-GT, 1- 35Z5-GT.....Mar.1952..40¢

R-407 Versatile Amplifier Serves Practically any Audio Purpose.Perfect stability and unusual gain are outstanding features. Output is 4.5 watts; 4- input circuits are available and reluctance(magnetic) pickup can be used in the microphone channel. Tubes: 1- 6SF5(not GT), 1- 6SL7-GT, 1- 6V6-GT, 1- 5Y3-GT.....Feb. 1952..40¢

R-406 Two Radio Set-Testing Units for Experimenters. One is a simple low-cost d.c. volt-ohmmeter; the other is an a.c. voltmeter and capacity tester.....Dec. 1951..40¢

R-405 Battery-Operated Five-Band Receiver for Experimenters.Tunes broadcast band and 4 short-wave bands. This is Set No. 2 in the progressive 2-set series that began in the May 1951 issue; the first set was R-400. It is not necessary to build the first set as both units are complete battery-operated receivers independent of power lines; a necessary factor stressed by those planning civil defense programs. Hand-wound coils are used. Tubes: 1- 1U5, 1- 3V4, 2- 1U4.....Nov. 1951..40¢

R-403 Easy-To-Build 80-Meter Receiver for the New "Novice" Ham Band. Novice class license examinations require a code speed of only 5 words per minute. "A suitable transmitter is R-404--see last page. Tubes: 1- 6AK5 miniature, 1- 6N7-GT.....Sept. 1951..40¢

R-402 Three-Speed Record Broadcaster Plays Through any Set in the Home. An improved "wireless" record player; special oscillator circuit provides nearly 100% modulation; excellent quality. Tubes: 1- 6C4, 1- 50C5.....Aug. 1951..40¢

R-400 1951 Battery-Operated Progressive Set for Experimenters (No. 1). Simple and independent of power lines; makes excellent emergency receiver. A later No. 2 set using practically all of the same parts, with additions, will include short-wave bands. Tubes: 1- 1U4, 1- 3V4 (miniature types).....May 1951..40¢

R-399 1951 "Little Giant" Hi-Fi Tuned-Radio-Frequency (TRF) Broadcast Receiver. Designed for high-fidelity program reception without using expensive components. Tubes: 2- 6SK7, 2- 6SQ7, 2- 6V6-GT, 1- 5Y3-GT.....Mar.1951..40¢

R-398 Super-Fidelity Amplifier has Hum-Reduction Feature.For record player or microphone. Has output of 10 watts at high quality and exceptionally low hum. Tubes: 1- 5U4G, 2- 6V6, 1- 6N7, 3- 6SJ7.....Feb. 1951..40¢

R-396 Three Germanium Diode Crystal Receivers for Beginners. These sets employ type 1N34 germanium diodes as fixed crystal detectors.They are simple to build, excellent for experimenters...Dec. 1950..40¢

R-395 How to Build a Multi-Purpose Phototube Relay. Permits the turning on or off of lights, or electrical appliances by breaking a beam of light that is shining on the phototube..... Tubes: 1- RCA 918 phototube, 1- 50L6-GT.....Oct. 1950..40¢

R-394 One-Tube Pocket Receiver for Experimenters. Only one miniature tube(type 1S5) is used in this emergency pocket receiver.It is designed for local stations;uses emergency antenna.Oct. 1950..40¢

R-392 Five-Tube Circus-Wagon Super for Playroom. This is a conventional circuit 5-tube a.c.-d.c. super in a homemade circus-wagon cabinet Tubes: 1- 12SA7, 1- 12SK7, 1- 12SQ7-GT, 1- 50L6-GT, 1- 35Z5-GT.. .....Aug. 1950..40¢

R-391 Uranium Survey Meter With Audio Amplifier. This new model of the original Geiger-Mueller Uranium Survey Meter has 1-tube audio amplifier. Tubes: 1- type 3V4 miniature, 1- Geiger-Mueller. This can be the original Kelley-Koett K-EX-Gem if you have it. This tube has now been replaced with the Kelley-Koett K-23, or Victoreen 1B85 may be used. Any other 900-V. Geiger-Mueller tube such as the Raytheon CK-1021 may be used.....July 1950..40¢

R-390 Portable Knockabout Super Built in a Lunch Box. This compact portable super, designed for battery operation only, for beach, camping, boating or other outdoor use. Tubes: 1- 1R5, 1- 1U5, 1- 1T4, 1- 3V4, (miniature types).....June 1950..40¢

R-389 Capacity-Operated Electronic Switch. This sensitive capacity-operated electronic relay has many applications around the home and in industry. The approach of a person or object to a concealed antenna wire operates a 110-volt a.c. relay to turn on lights, ring an alarm bell, etc. Tubes: 1- 117L7/17GT, 1- type 2050 Thyratron .....May 1950..40¢

R-388 No. 2 Progressive All-Wave A.C. "Overseas Dxer" for Students. This is Set No. 2 in the series that started with R-385. Both are complete sets; only a few additional parts and tubes are required for this larger a.c. student receiver. Brings in distant short-wave stations and standard broadcast stations. Tubes: 1- 6SG7, 1- 6SN7-GT, 1- 6V6-GT, 1- 30 rectifier.....Apr. 1950..40¢

R-385 No. 1 Progressive All-Wave "Overseas Dxer" for Students. Brings in distant short-wave stations and regular broadcast programs. Slightly more advanced than former progressive student sets, but simple enough for any beginner. Tubes for No. 1 Set: 1- 6SG7, 1- 6SN7-GT.....Jan.1950..40¢

R-384 Amplifier for 45 R.P.M. Record Changer in Portable Case. A compact high quality 3-tube audio amplifier with 5-in.PM speaker in a specially designed portable case. Tubes: 1- 12AV6, 1- 50C5, 1- 35W4 (miniature types).....Dec. 1949..40¢

R-383 Indoor A.C.-D.C. Amplifier for Hard-Of-Hearing Persons. Operates from ordinary 110-volt houselighting outlets. Uses miniature-type tubes: has high gain and good quality. Tubes: 1- 12AU7, 1- 35W4, 1- 6C4; in portable wooden case.....Nov. 1949..40¢

R-382 Two-Tube "Mini-Pal" Portable has Built-In Loop Antenna. Similar to the popular "Pockette" sets; built into a plastic filing card case available in "dime" stores. Tubes: 2- type 3S4. Oct..1949..40¢

R-381 Remote "Slave" Flash Synchronizer for Multiple Flash Photography. Solves the problem of long extension cords. Tubes: 1- 6AK5 miniature, 1- RCA 1P39 phototube.....Sept..1949..40¢

R-380 An Inexpensive Signal Tracer for Radio Servicing. A modern point-to-point method of servicing radio receivers. Quickly enables you to locate the defective stage or part. Tubes: 1- 5Y3-GT, 1- 6K6-GT, 1- 6SH7, 1- 6C4.....Aug. 1949..40¢

R-378 Two-Tube Super Battery Pack Set for Vacations. Rugged little student-type-battery-operated knockabout broadcast set for campers and hikers. Tubes: 1- 1R5, 1- 1U5.....June 1949..40¢

R-375 1949 "Little Giant" TRF Dual-Purpose Set for Experimenters. An excellent a.c.-d.c. 4-tuber. May be used as amplifier for record player, or as an AM tuner for a P.A. system. Tubes: 1- 12SK7, 1- 12SJ7-GT, 1- 50L6-GT, 1- 35Z5-GT.....Mar. 1949..40¢

R-371 Low-Cost Phone System Also Serves as Electronic Nurse. Master station and two remote stations. Tubes: 1- 12AU6, 1- 50B5...Oct.1948..40¢

R-370 Portable Three-Tube Phono Player with Automatic Record Changer. Has high-gain 3-tube audio amplifier. Either single or automatic record changer may be used. Tubes: 1- 35L6-GT, 1- 12SL7-GT, 1- 35Z5-GT.....Sept.1948..40¢

R-369 Three-Tube Pocket Set has Built-In Loudspeaker. "Walkie-Talkie" type portable battery-operated for local broadcasting stations; not for beginners. For simple 2-tube set see R-337. Tubes: 1- 1S4, 2- 1U5.....Aug.1948..40¢

R-368 Beginner's One-Tube A.C.-D.C. Loudspeaker Set. Only a few parts are required to build this simple 1-tube receiver that employs a germanium 1N34 crystal as a detector, and a type 117N7-GT tube as a rectifier and amplifier.....July 1948..40¢

R-367 Three-Way Four-Tube Portable Vacation Receiver. Compact super, in homemade wooden case, operates on either batteries, or 110-volt a.c. or d.c. lines. Tubes: 1- 1R5, 1- 1T4, 1- 1S5, 1- 3V4. June 1948..40¢

R-366 Four-Tube Super Broadcast Tuner May be Used With Any Audio Amplifier; designed for use with PA system, or audio amplifier for tuning in broadcast programs. Tubes: 1- 12SA7, 1- 12SK7, 1- 12SQ7, 1- 35Z5-GT.....May 1948..40¢

R-365 Tapped-Coil Crystal Receiver and Battery-Operated Amplifier. Unusual selectivity; two-tube audio amplifier permits use of loudspeaker. Tubes: 1- 1H5-GT, 1- 1Q5-GT.....April 1948..40¢

R-363 Low-Cost Three-Tube Progressive Receiver--Set No. 2. This all-electric set in the two-unit beginner's series operates a 5 or 6-in. PM loudspeaker. Uses practically all of the same parts used in Set. No. 1, with a few additions; tunes from 545 to 18 meters. Tubes: 1- 6SL7-GT, 1- 6K6-GT, 1- 80.....Feb. 1948..40¢

R-362 1948 Low-Cost Progressive Receiver for Beginners--Set No. 1. A 1-tube broadcast receiver; later expanded into a larger set that includes short-wave bands; uses a type 6SL7 dual purpose tube.....Jan. 1948..40¢

R-360 6SG7 Signal "Booster" Increases Sensitivity of Short-Wave Receivers. For use with simple superheterodyne short-wave sets that have no R.F. stages ahead of the mixer stage. Boosts weak signals; uses high-gain 6SG7 tube.....Oct. 1947..40¢

R-359 Battery-Operated Amplifier for Portable Record Player or Small Receiver. Converts spring-wound record players and student sets for loudspeaker operation. Tubes: 1- 1S5, 1- 1S4..Sept. 1947..40¢

R-355 Beginner's 4-Tube Progressive Receiver--Set No. 2; although entire-

ly different from Set No. 1 (R-354below) this unit uses most of the same parts, with additions. Operates loudspeaker & tunes from 18 to 550 meters. Tubes: 1- 6C5, 2- 6J5-GT, 1- 6G6-G.May '47..40¢

R-354 Beginner's Low-Cost Progressive Receiver--Set No.1.This 1-tube broadcast-band receiver is especially planned for the beginner. It uses a 6J5-GT tube for headphone reception.....April 1947..40¢

R-344 Self-Contained P.A. Amplifier With Record Player. A compact 10-watt audio amplifier with speaker and record player combined. Tubes: 1- 6N7, 2- 6V6, 1- 6J7 & 1- 5Z3 rectifier....May 1946..40¢

R-339 Electronic Photo-Print Timer for Enlarger or Contact Printer. Accurately controls timing to make uniform prints. Uses one type 117L7-GT tube.....Nov.1945..40¢

R-337 Two-Tube "Pockette" Portable. Operates on flashlight cells; "walkie-talkie" type receiver small enough to slip into your coat pocket. Uses built-in loop antenna. Tubes: 2 type 1S4 miniature .....Sept.1945..40¢

R-316 "Pop Corn Can" Signal Generator for Home Set Servicing. A.C.-D.C. oscillator provides signals for calibrating receivers. Tubes: 1- 7A7 LM loctal (interchangeable with 7A7), 1- 6C5-GT, or GT/G.... .....July 1943..40¢

R-313 Code-Practice Oscillator and Short-Wave Code Receiver for Students. Two simple and efficient a.c.-d.c. "breadboard" units. A single 25A7-GT tube serves both units.....Jan.& Mar.1943..40¢

TRANSMITTERS: (AMATEUR RADIO LICENSE REQUIRED FOR OPERATION)

R-404 Low-Cost CW Transmitter for the New Novice Ham Band. For the newcomer in ham radio who has received his operating ticket. This simple CW transmitter operates in the 3700 to 3750 kilocycle (80-meter) Novice Band. Complete tuning instructions and antenna construction details for putting your Novice Station on the air. Tubes: 1- 6L6-G, 1- 6V6-G.....Oct. 1951..40¢

R-393 120-Watt 10-Meter Transmitter Features Air-Cooled Final. This was designed especially for those who built the 160-meter phone transmitter R-386.It can be operated by the same power supply and modulator units.Tubes: 1- 6V6-GT, 1- 6L6, 1- 829-B...Sept. 1950..40¢

R-386 Amateur Phone Transmitter for the 160-Meter Band. Complete R.F. modulator and power supply on 4 standard chassis bases. Operates at 120-watts input; the R.F. transmitter is a full 3-stage unit with a Pierce oscillator, buffer and final amplifier. A pair of 1625's used in both final amplifier & modulator.Feb.& Mar. 1950..40¢

R-358 "Hi-Q 50" Five-Band Phone and CW Transmitter. 50-watt transmitter for licensed amateur radio operators. Tubes: 3- 6N7, 1- 6SJ7, 2-866-Jr., 1- 6V6-GT, 1- 807.....Aug. 1947..40¢

R-350 Fifty-Watt 10-Meter CW Transmitter. Only 4 tubes are used in this compact 2-unit transmitter which was described in the December 1946 issue. An excellent CW transmitter for beginners. Tubes: 1- 80, 1- 83, 1- 6L6 and 1- 815.....Dec. 1946..40¢